Medical Technologies Journal, Volume: 2, Issue: 2, April-June 2018, Pages:224-225.
Doi :https://doi.org/10.26415/2572-004X-vol2iss1p224-225

Assessment of Inflammatory response of developed vaccine against scorpion envenomation using attenuated venom

Type of article: Conference abstract

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Abstract

Background: In Algeria Scorpion envenoming is very common, vaccine therapy based on irradiated venom antigens could be an attracted approach to prevent the lethal and pathophysiological effects induced after scorpion envenomation. The study aimed to evaluate the inflammatory response of detoxified *Androctonus australis hector* (*Aah*) venom used in vaccine approach against scorpion stings.

Methods: This approach was undertaken with groups of three New-Zealand Oryctolagus cuniculus rabbits. The animals were inoculated three times at one-month interval. During the immunization schedule, blood samples were collected weekly after each injection. Cell count, serum peroxidase activities (MPO, EPO) and antibody titer (IgG) were evaluated. Six months after immunization, a protective effect of immunized rabbits with detoxified venom was evaluated by injection of different lethal doses of native Aah venom and mortality was recorded.

Results: During the immunization schedule, low levels of peripheral neutrophil, eosinophil cell count and peroxidase activities were observed in sera of immunized animals with detoxified venom. Furthermore, immunological response showed high level of lymphocyte titers accompanied with high IgG titer at one month after immunization followed by gradual decrease that persisted at six months. More interestingly, detoxified venom can induce an immunoprotective effect six months after immunization against challenge with lethal doses until 6 DL50 of native venom.

Conclusion: It seems that detoxified venom associated to alum adjuvant triggers a specific immune response with low inflammation. Despite antibody titer decreased with time, the protection remained higher. These results allowed this vaccine as a possible alternative to immunotherapy.

Keywords: Detoxified venom, alum adjuvant, inflammatory response, immunoprotection.

1. Conflict of interestsstatement

This article was selected from ICHSMT'17 abstracts book.

2. Authors' biography

No Biography

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3. References

No references